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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/573,803	03/28/2006	Florian Dotz	288248US0PCT	9379

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ALEXANDRIA, VA 22314

EXAMINER

WILSON, MICHAEL H

ART UNIT	PAPER NUMBER
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1794

NOTIFICATION DATE	DELIVERY MODE
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01/12/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/573,803	Applicant(s) DOTZ ET AL.	
	Examiner MICHAEL WILSON	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 5 and 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

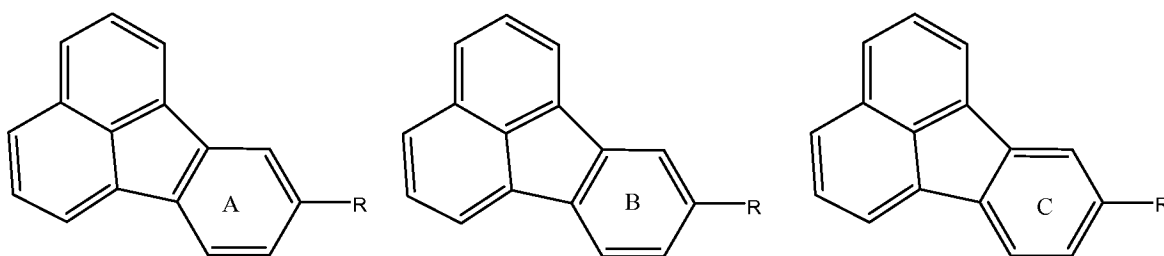
- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20060627</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group II in the reply filed on 23 October, 2008 is acknowledged. The traversal is on the ground(s) that it is unclear how the disclosure of Williams et al. (The characterization of unsaturated compounds by means of acycyclone.) could produce such a compound as shown above with 3 points of unsaturation in rings A and B. Applicant argues that Williams et al. disclosure would lead to only 2 points of unsaturation in the rings corresponding to A and B.

The examiner believes applicant is referring to the carbon-carbon double bonds in phenyl rings A and B as "points of unsaturation." Any difference is the drawing of a phenyl group in the fluoranthene derivative is resonance structure and represents the same chemical compound. For example while the compounds having rings A, B, and C each are drawn with different carbon-carbon double bond arrangements,



all three compounds have the same fluoranthene skeleton of sp^2 hybridized carbon atoms and are chemically the same. Similarly, the fluoranthenes of both Williams et al. and applicant possess the same fluoranthene skeleton of sp^2 hybridized carbon atoms, and also are chemically the same. The difference in the above compounds (containing

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rings A, B, and C) as well as the difference between the rings of Williams et al. and applicants is the drawing of different resonance structures of the *same* chemical compound. The phenyl ring in the fluoranthene of Williams et al. will contain three “points of unsaturation” if a different resonant structure is drawn, just like rings B and C have three “points of unsaturation” while ring A has 2 “points of unsaturation.”

Applicants further argue that the Examiner has not provided any indication that the contents of the claims interpreted in light of the description was considered in making the assertion of a lack of unity and therefore has not met the burden necessary to support the assertion. However the examiner is unaware of any requirement to provide detail how a claim interpretation is in light of the specification. Lack of unity *a posteriori* is established by identifying the common technical feature unifying the claims and demonstrating that that technical feature is known in the prior art. This was properly demonstrated by the examiner in the requirement mailed 23 September, 2008. Additionally applicants fail to distinctly point out the supposed error(s) in the examiners interpretation of the claims in light of the specification, besides the argument discussed above.

Additionally while 37 CFR 1.475(b)(1) states that a national stage application containing claims to different categories of invention will be considered to have unity of invention if the claims are drawn to a product and a process specially adapted for the manufacture of the product, this does not preclude that there is lack of unity of invention under PCT Rule 13.1 and 132 (see also MPEP 1850 II).

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 5 and 6 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 23 October, 2008.

Information Disclosure Statement

3. Reference AW in the IDS filed 27 June, 2006, GHOSH K. et al., "Synthesis of arylated fluoranthene derivatives", Indian Journal of Chemistry, Vol. 16B, No. 2, Pages 152 - 153, 1978, has not been considered because a copy of the reference, or the relevant portion of the reference, has not been supplied.

Claim Objections

4. Claim 12 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Regarding claim 12, the claim recites one of more fluoranthene derivatives of general formula (I) as set forth in claim 7. However claim 7 is drawn to an organic light-emitting diode not a fluoranthene derivative.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-4 and 7-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1 and 7, it is unclear what the limitation "from 1 to 20" (claim 1, line 13; claim 7, line 14) is defining. Is the oligophenyl or n being defined? For the purposes of this action the claims are interpreted to read --where X is an oligophenyl, n is 1-20--. Claims 2-4 and 8-18 are indefinite by dependency.

Appropriate correction is required.

Specification

7. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

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8. The abstract of the disclosure is objected to because it is longer than 15 lines and more than 150 words. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1, 3, 4, 7-13, 14, 15, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Tagami et al. (US 2003/0054200 A1).

Regarding claims 1, 3, and 4, Tagami et al. disclose a fluoranthene derivative [00015] of the general formula (I) wherein R1 and R3 are phenyl groups, n equals 1, X is a aromatic radical which forms a fused ring system with R2, and R4 is hydrogen, and R5 is CH=CH-C6H5 (page 9, compound A-13) or a heteroaromatic radical (pages 18 and 19, compound B-15 to B-17).

Regarding claims 7-9, and 11-13, Tagami et al. disclose an organic light-emitting diode comprising a fluoranthene derivative [00015] of the general formula (I) wherein R1 and R3 are phenyl groups, n equals one, X and R2 form a fused ring system, and R4 is hydrogen, and R5 is CH=CH-C6H5 (page 9, compound A-13) or a heteroaromatic

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radical (pages 18 and 19, compound B-15 to B-17) as a light-emitting compound in the light-emitting layer ([0038], [0040], [0100], and [0117] table 1 examples 7 and 8).

Regarding claims 10, 14, 15, and 17, Tagami et al. disclose all the claim limitations as set forth above. Additionally the reference discloses wherein the device is a television, a stationary display unit [0120].

11. Claims 1-4, 7-9, and 11-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Cho et al. (US 2005/0067955 A1).

Regarding claim 1-4, Cho et al. disclose a fluoranthene derivative of the general formula (I) wherein R1 and R3 are phenyl groups, n equals 2, R2, R4, and R5 are hydrogen, and X is phenyl ([0041]-[0044]) or a heteroaromatic radical ([0069]-[0072]).

Regarding claims 7-9, and 11-13, Cho et al. disclose an organic light-emitting diode [0033] comprising a fluoranthene derivative of the general formula (I) wherein R1 and R3 are phenyl groups, X is phenyl, n equals 2, and R2, R4, and R5 are hydrogen ([0041]-[0044]) as a light-emitting material [0020] in the light-emitting layer [0032].

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claims 1-4, 7-15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosokawa et al. (JP 2002/069044 A), machine translation relied upon.

Regarding claim 1-4, Hosokawa et al. disclose a fluoranthene derivative wherein X is phenyl, n equals 2, and R4 and R5 are hydrogen ([0014] compound A18). The reference also discloses wherein R1 and R3 are phenyl groups ([0011] compounds A1 to A5, [0013] compounds A15 and 16). The reference also discloses wherein R2 is CH=CH-C6H5 ([0013], compound A13). However, the reference does not explicitly disclose a compound wherein at least one of R1, R2, and R3 is not hydrogen when X is phenyl.

While Hosokawa et al. does not exemplify R1 and R3 as phenyl in a compound of instant formula (I) ([0014], compound A18), this does not negate a finding of obviousness under 35 USC 103 since a preferred embodiment such as an example is not controlling. Rather, all disclosures "including unpreferred embodiments" must be considered. In re Lamberti 192 USPQ 278, 280 (CCPA 1976) citing In re Mills 176 USPQ 196 (CCPA 1972). Therefore, it would have been obvious to one of ordinary skill

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in the art at the time of the invention to utilize phenyl as R1 and R3 given that Hosokawa et al. teaches that phenyl is suitable in both the R1 and R3 positions and demonstrates phenyl in those positions in similar compounds ([0011] compounds A1 to A5, [0013] compounds A15 and 16) taught for the same purpose.

Regarding claim 7-9, and 11-13, Hosokawa et al. disclose an organic light-emitting diode [0009] comprising a fluoranthene derivative as a light-emitting material ([0009], [0052], [0056]) in a light-emitting layer [0052], wherein R1 and R3 are phenyl groups ([0011] compounds A1 to A5, [0013] compounds A15 and 16). The reference also discloses wherein R2 is CH=CH-C₆H₅ ([0013], compound A13). The reference also discloses wherein X is phenyl, n equals 2, and R4 and R5 are hydrogen ([0014] compound A18). However, the reference does not explicitly disclose a compound wherein at least one of R1, R2, and R3 is not hydrogen when X is phenyl.

While Hosokawa et al. does not exemplify R1 and R3 as phenyl in a compound of instant formula (I) ([0014], compound A18), this does not negate a finding of obviousness under 35 USC 103 since a preferred embodiment such as an example is not controlling. Rather, all disclosures "including unpreferred embodiments" must be considered. In re Lamberti 192 USPQ 278, 280 (CCPA 1976) citing In re Mills 176 USPQ 196 (CCPA 1972). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize phenyl as R1 and R3 given that Hosokawa et al. teaches that phenyl is suitable in both the R1 and R3 positions and demonstrates phenyl in those positions in similar compounds ([0011] compounds A1 to A5, [0013] compounds A15 and 16) taught for the same purpose.

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Regarding claims 10, 14, 15, and 17, modified Hosokawa et al. disclose all the claim limitations as set forth above. Additionally the reference discloses wherein the device is part of a television, printer, or light beacon [0028], stationary visual display units.

15. Claims 10, 14, 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosokawa et al. (JP 2002/069044 A), machine translation relied upon, as applied to claim 9 and 13 above, and further in view of Nishi et al. (US 2001/0004190 A1).

Regarding claims 10, 14, 16 and 18, modified Hosokawa et al. disclose all the claim limitations as set forth above. However the reference does not explicitly disclose the device as part of a mobile phone, laptop, or vehicle, which are mobile visual display units.

Nishi et al. teaches a similar light-emitting diode [0007]. The reference teaches the device may be used in mobile visual display units like a mobile phone (figure 14A), a laptop (figure 13F), or a vehicle (figure 14B, [0219]).

It would be obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Nishi et al. with the device of modified Hosokawa et al. and use the device of modified Hosokawa et al. in mobile visual display units like a mobile phone, a laptop, or a vehicle. One of ordinary skill in the art would reasonably expect such a combination to be suitable given that Nishi et al. teaches organic light-emitting diodes may be used in mobile phones, laptops, or vehicles. One of ordinary skill would

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be motivated by a desire to provide a visual display unit with high heat resistance and high luminous efficiency as taught by Hosokawa et al. [0003].

16. Claims 10, 14, 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tagami et al. (US 2003/0054200 A1) as applied to claims 9 and 13 above and in view of Nishi et al. (US 2001/0004190 A1).

Regarding claims 10, 14, 16 and 18, Tagami et al. disclose all the claim limitations as set forth above. Additionally the reference discloses wherein the device is a television, a stationary display unit [0120]. However the reference does not explicitly disclose the device as part of a mobile phone, laptop, or vehicle, which are mobile visual display units.

Nishi et al. teaches a similar light-emitting diode [0007]. The reference teaches the device may be used in mobile visual display units like a mobile phone (figure 14A), a laptop (figure 13F), or a vehicle (figure 14B, [0219]).

It would be obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Nishi et al. with the device of Tagami et al. and use the device of Tagami et al. in mobile visual display units like a mobile phone, a laptop, or a vehicle. One of ordinary skill in the art would reasonably expect such a combination to be suitable given that Nishi et al. teaches organic light-emitting diodes may be used in mobile phones, laptops, or vehicles. One of ordinary skill would be motivated by a desire to provide a visual display unit with high efficiency and long lifetime as taught by Tagami et al. [0005].

17. Claims 10 and 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho et al. (US 2005/0067955 A1) as applied to claims 9 and 13 above, and in view of Nishi et al. (US 2001/0004190 A1).

Regarding claims 10 and 14-18, Cho et al. disclose all the claim limitations as set forth above. However, the reference does not explicitly disclose the device as part of a television, mobile phone, laptop, or vehicle, which are mobile and stationary visual display units.

Nishi et al. teaches a similar light-emitting diode [0007]. The reference teaches the device may be used in mobile visual display units like a television (figure 13A), a mobile phone (figure 14A), a laptop (figure 13F), or a vehicle (figure 14B, [0219]).

It would be obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Nishi et al. with the device of Cho et al. and use the device of Cho et al. in mobile or stationary visual display units like a television, a mobile phone, a laptop, or a vehicle. One of ordinary skill in the art would reasonably expect such a combination to be suitable given that Nishi et al. teaches organic light-emitting diodes may be used in mobile phones, laptops, or vehicles. One of ordinary skill would be motivated by a desire to utilize the device of Cho et al.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ishida et al. (JP 2001/257075 A) and Ghost et al. (Synthesis of

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arylated fluoranthene derivatives.) both disclose fluoranthene derivative compounds which overlap with the present fluoranthene derivative compounds. However the references are cumulative to the rejections of record.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL WILSON whose telephone number is (571) 270-3882. The examiner can normally be reached on Monday-Thursday, 7:30-5:00PM EST, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on (571) 272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

20. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MHW

/Callie E. Shosho/
Supervisory Patent Examiner, Art Unit 1794